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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/014,290 | 12/10/2001 | Kyoung Il Min | 404302000800 | 2339 |
| 25226 | 7590 | 10/03/2003 | EXAMINER | |
| MORRISON & FOERSTER LLP 755 PAGE MILL RD PALO ALTO, CA 94304-1018 | | | DI GRAZIO, JEANNE A. | |
| | | ART UNIT | PAPER NUMBER | |
| | | 2871 | | |
| DATE MAILED: 10/03/2003 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|---------------------|--------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/014,290 | MIN ET AL. |
| | Examiner | Art Unit |
| | Jeanne A. Di Grazio | 2871 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 27 June 2003.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-14 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 10 December 2001 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Priority

Priority to Korean Application No. 2001-0024268 (May 4, 2001) is claimed.

Status of Claims

Responsive to communication of June 27, 2003. Claims 1-14 remain pending.

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, and 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Harkin (US 6,327,376 B1) in view of Kawahara et al. (US 6,401,551 B1).

Per claims 1 (amended) and 4: Harkin has a fingerprint reading device that is of a light-sensing type (optical sensing device, 60). The sensor is arranged to operate with a light source (61) directing light through a sensing array towards a person's finger (Col. 8, Lines 15-19).

Harkin furthermore teaches that a backlight is conventionally employed for a source of light in a transmissive mode (Col. 9, Lines 26-29).

Harkin does not appear to explicitly specify that an LCD part and a light sensing fingerprint capture sensor are arranged on the same plane and that the LCD part and the light sensing fingerprint capture sensor are simultaneously arranged through the same manufacturing process; however, Kawahara has an LCD part (Figure 2, LCD part 11)(larger than the sensor part) and fingerprint capture sensor (Figure 2, sensor 12)(smaller than the LCD part) arranged on the same plane (Figure 2) and furthermore teaches that the LCD part and its fingerprint reading sensor can be manufactured simultaneously (Col. 4, Lines 35-40). Furthermore, a drive circuit is included to drive each of the LCD and sensor components (Col. 3, Lines 16-20).

Kawahara teaches that both the LCD part and sensor can be manufactured simultaneously and through the same process (Col. 4, Lines 33-45) so that manufacturing costs can be reduced to a considerable degree (Id.).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Harkin in view of Kawahara for a light sensing fingerprint capture sensor and LCD component that can simultaneously be manufactured by the same process so that manufacturing costs can be considerably reduced.

Per claim 2: Harkin does not appear to explicitly specify that the fingerprint capture sensor obtains a fingerprint image by a one-line scan method; however, Kawahara has one-dimensionally arranged detection electrodes and a method of scanning while making the finger slide on the detection electrodes (Col. 6, Lines 1-9) for the purpose of saving installation space when the device is mounted on a small-sized mobile terminal (Col. 6, Lines 10-13). It would

have been obvious to one of ordinary skill in the art at the time the invention was made to modify Harkin in view of Kawahara for the purpose of saving installation space when the device is mounted on a small-sized mobile terminal (Col. 6, Lines 10-13).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harkin (US 6,327,376 B1) in view of Kawahara et al. (US 6,401,551 B1) and further in view of Kawahara et al. (US 6,462,563 B1).

Per claim 3: Harkin does not appear to explicitly specify separate drive units; however, Kawahara (563) does have drive circuits [ABS.]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Harkin in view of Kawahara (563) to have a drive circuit for the LCD part and a drive circuit for the fingerprint sensor part for improved versatility as noted in Kawahara (563).

Claims 5-7 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahara et al. (US 6,401,551 B1) in view of Lan (WO-01/69520 A2) and further in view of Kurihara et al. (US 6,501,529 B1).

Per claims 5 and 7 and 9: As broadly interpreted, Kawahara has a TFT panel including an LCD part formed in a region of the TFT panel (Figure 2, LCD part 11 formed in a region of TFT panel active elements 26)(larger than sensor part) and a fingerprint capture part (Figure 2, sensor 12) formed in the remaining region of the TFT panel (active elements 36)(smaller than LCD part), and a liquid crystal element attached only to a top of the LCD part of the TFT panel (LC element is only attached to the LCD part 11).

Kawahara furthermore has one-dimensionally arranged detection electrodes and a method of scanning while making the finger slide on the detection electrodes (Col. 6, Lines 1-9) for the

purpose of saving installation space when the device is mounted on a small-sized mobile terminal (Col. 6, Lines 10-13). Furthermore, a drive circuit is included to drive each of the LCD and sensor components (Col. 3, Lines 16-20).

Kawahara does not appear to explicitly specify a backlight where the TFT panel is attached to the backlight; however, Lan discloses a biometric sensor that has a backlight in direct contact with a substrate layer and which provides electrical power for the light source layer (Page 17, Lines 33-35 and Page 18, Lines 1-7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawahara in view of Lan to provide light to the device and sensor.

Kawahara does not appear to explicitly specify a color filter attached only to a top of the LCD element; however, Kurihara has a color filter in an LCD region for contributing to a color touch sensor display (Figure 8, color filter 21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawahara in view of Kurihara to include a color filter for a color display.

Per claim 6: Kawahara does not appear explicitly specify a transparent protective layer on top of the fingerprint capture part of the TFT panel so that a top surface of the fingerprint capture part and a top surface of the color filter are level; however, Lan has a protective layer over the surface of the sensor and color filter (Page 61, Lines 16-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawahara in view of Lan to provide necessary planarization and protection for the underlying sensor layer (Id.).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahara et al. (US 6,401,551 B1) and in view of Lan (WO-01/69520 A2) and further in view of Kurihara et al. (US 6,501,529 B1) and further in view of Kawahara et al. (US 6,462,563 B1).

Per claim 8: Kawahara does not appear to explicitly specify separate drive units; however, Kawahara (563) does have drive circuits [ABS.]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawahara in view of Kawahara (563) to have a drive circuit for the LCD part and a drive circuit for the fingerprint sensor part for improved versatility as noted in Kawahara (563).

Claims 10-12 and 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahara et al. (US 6,401,551 B1) in view of Lan (WO-01/69520 A2) and further in view of Fujioka et al. (US 6,552,764 B2).

Per claims 10 (amended) and 14: As broadly interpreted, Kawahara has a TFT panel including an LCD part formed in a region of the TFT panel (Figure 2, LCD part 11 formed in a region of TFT panel active elements 26)(larger than sensor part) and a fingerprint capture part (Figure 2, sensor 12) formed in the remaining region of the TFT panel (active elements 36)(smaller than LCD part), and a liquid crystal element attached only to a top of the LCD part of the TFT panel (LC element is only attached to the LCD part 11). As noted, Kawahara has drive units.

Kawahara does not appear to explicitly specify a backlight where the TFT panel is attached to the backlight; however, Lan discloses a biometric sensor that has a backlight in direct contact with a substrate layer and which provides electrical power for the light source layer (Page 17, Lines 33-35 and Page 18, Lines 1-7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawahara in view of Lan to provide light to the device and sensor.

Kawahara does not appear to explicitly specify a color filter attached to a top of the liquid crystal element and extended to cover a region in which the LCD part is not formed and a fingerprint capture part formed on a region of the color filter covering the region in which the LCD part is not formed; however, Fujioka teaches that it is conventional for a color filter to extend beyond an active region to conceal the wiring pattern and the like on the active matrix substrate (Col. 1, Lines 56-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawahara in view of Fujioka to extend the color filter beyond the active region of the LCD part to conceal wiring.

Fujioka does not appear to specify the formation of a sensor on the color filter part that extends beyond the LCD part; however, in Lan, the sensor is arranged on a color filter to selectively permit emitted light of a particular color or wavelength to enter the fingerprint sensor and to be transmitted through the fingerprint sensor to improve the illumination of the fingertip (Page 61, Lines 16-22).

Based on the combined teachings of Fujioka and Lan, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the sensor on an extended color filter to selectively permit emitted light of a particular color or wavelength to enter the fingerprint sensor and to be transmitted through the fingerprint sensor to improve the illumination of the fingertip (Page 61, Lines 16-22).

Per claim 11: Kawahara does not appear explicitly specify a transparent protective layer on top of the fingerprint capture part of the TFT panel so that a top surface of the fingerprint

capture part and a top surface of the color filter are level; however, Lan has a protective layer over the surface of the sensor and color filter (Page 61, Lines 16-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawahara in view of Lan to provide necessary planarization and protection for the underlying sensor layer (Id.).

Per claim 12: Kawahara has one-dimensionally arranged detection electrodes and a method of scanning while making the finger slide on the detection electrodes (Col. 6, Lines 1-9) for the purpose of saving installation space when the device is mounted on a small-sized mobile terminal (Col. 6, Lines 10-13).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahara et al. (US 6,401,551 B1) and in view of Lan (WO-01/69520 A2) and further in view of Fujioka et al. (US 6,552,764 B2) and further in view of Kawahara et al. (US 6,462,563 B1).

Per claim 8: Kawahara does not appear to explicitly specify separate drive units; however, Kawahara (563) does have drive circuits [ABS.]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawahara in view of Kawahara (563) to have a drive circuit for the LCD part and a drive circuit for the fingerprint sensor part for improved versatility as noted in Kawahara (563).

Art Unit: 2871

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.

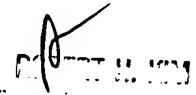
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (703) 305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

Robert Kim, SPE

JDG


ROBERT H. KIM
SUPERVISOR, 2871
TECHNOLOGY CENTER 2000